

## REMARKS

This paper is filed in response to the Non-Final Office Action mailed April 28, 2011. Claims 10-18 and 20 have been withdrawn. Claims 1-4, 19, 21 and 22 have been amended. Claim 2 is original. Claim 23 is new. Claims 5-6 are previously presented. Claims 8 and 9 have been cancelled. Therefore, claims 1-7, 19 and 21-23 as amended are pending, and Applicant respectfully requests reconsideration and allowance thereof.

### **Claim amendments**

Claims 1 and 22 have been amended to clarify that the binder is a film-forming polymeric binder. Support for this amendment can be found in at least claim 4 and paragraph 0012 of the application as published. The Examiner will appreciate that all of the binders described in the present application are film-forming by necessity, as if they were not they would not be able to form a coating layer. See for example page 19 lines 15-16 of the application as filed.

Claim 1 has also been amended to clarify that the composition prevents water-extractable substances contained in the substrate from leaching into the coating composition. Support for this amendment can be found on page 4, lines 9-10 of the application as filed. Further, claims 1 and 22 have been amended to clarify that the nanoparticles are present in 0.1-40% by weight. Support for this amendment can be found in page 13, lines 21-28 of the application as filed. The Examiner has also appreciated that the previous 0.1-4% was a typo, as on page 5 lines 1-2 of the pending Office Action, the Examiner states that "The coating also requires 0.1 to 40% by weight of inorganic nano-particles."

Finally, claims 1 and 22 been amended to clarify that the binder is 4-80% by weight. Support for this amendment can be found page 14, lines 1-10.

Claim 22 has been amended to correct an inadvertent omission of the degree sign "°" before C (100°C).

Claim 2 is amended to remove the species layered double hydroxides. New claim claim 23 depends from claim 2, and indicates that the anionic clays comprise layered double hydroxides. Claim 3 has been amended to clarify that the anionic clays are layered double hydroxide salts. Support can be found in on page 6 lines 11- page 8 line 3 of the application as filed.

Claims 19 and 21 have been amended to refer to the layered double hydroxide salt in singular form. Further, claim 21 is now dependent on claim 3. Support for this amendment

can be found in claim 21 as originally filed. Further, claim 21 has been amended to refer to the layered double hydroxide salt.

### **Restriction Requirement**

Applicant traverses the instant restriction requirement and moreover indicates it is improper and should be withdrawn.

The Examiner uses PCT rules on unity of invention, which are not the proper test at this stage in prosecution<sup>1</sup>. The section which the Examiner cites - MPEP §821.03 - actually requires the invention to be “**independent or distinct** from the invention originally claimed” in order for it to be restricted out after an action has been issued. Thus, a proper restriction requirement requires the Examiner to show both that the claims are independent or distinct and that a serious burden would result if the restriction was not made. MPEP §§802-803. The Examiner has made neither showing.

The Examiner applied a unity of invention standard under PCT §13.1 and §13., when instead the standard of “independent and distinct inventions” within the meaning §802 applied.

Moreover, Applicant reminds the Examiner that an RCE was filed concurrently with the presentation of new claim 22. It is not clear that even §821.03 is proper, and that such constructive election is allowed without issuance of a new restriction requirement.

Therefore, Applicant respectfully requests removal of the improper restriction and continued prosecution of claim 22 in addition to the pending claims.

### **Specification**

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. Specifically, the Office Action objects to claim 2, which claims that the nanoparticles are anionic clays or layered double hydroxide (LDH) salts), while according to the Examiner’s reading of the specification, the nanoparticles can be anionic clays (of which layered double hydroxides, not layered boule hydroxide salts area subset thereof) (page 6, line 10 through page 8 line 15) or that the particles can be layered hydroxyl salts (page 9, lines 5-30).

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<sup>1</sup> Namely, MPEP §1850 indicates that this method for determining whether unity of invention exists is intended to be applied even before the commencement of the international search or national stage search.

Claim 2 has removed the limitation of layered double hydroxides, and this limitation is now found in new claim 23, which is dependent on claim 2. Claim 3 has been amended to clarify that anionic clays comprise layered double hydroxide salts.

Further, it will be immediately clear to one of ordinary skill in the art that an anionic clay (having cationic layers) must have anions to balance the charge on the cationic layers and by consequence are always salts. See the application as filed, page 6 lines 17-23.

Therefore, Applicant submits that the instant objection should be withdrawn.

### **§112 Rejections**

Claims 1-7, 19 and 21 are rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement. Specifically, the Office Action asserts that claim 1 adds the limitation that the coating composition prevents substances contained in the substrate from leaching into the coating composition. However, this appears to be broader than supported by the specification. The specification supports water soluble or extractable staining substances, but not the more broadly claimed substances, which would include non-water soluble or extractable staining substances.

Claim 1 has been amended to clarify that the coating composition prevents water-extractable substances contained in the substrate from leaching into the coating composition. Support for this amendment can be found on page 4, lines 9-10 of the application as filed. Therefore, Applicant submits that the instant rejection has been obviated and should be withdrawn.

Claims 1-7, 19 and 21 stand rejected under 35 USC §112, second paragraph, for being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 1, the Office Action indicates it is unclear how the total amount of water borne organic polymeric binder can be 100% by weight of the composition based on the total weight of the water borne coating composition. Applicant has amended claim 1 and claim 23 to indicate that the binder is present in 4-80% by weight, thereby obviating the instant rejection.

With regard to claim 3, the Office Action indicates that claim 3 claims materials from which the layered double hydroxide is selected, however it is unclear if these materials are to be formed into a salt of claim 2 or instead should be read “wherein the anionic clay is a layered double hydroxide..” Applicant has amended claims 2 and 3. Claim 2 has removed

the alternative of layered double hydroxide, which is now presented new dependent claim 23, which depends from claim 2. Further, claim 3 has been amended to clarify that the anionic clay comprises layered double hydroxide salts selected from the group consisting of hydrotalcite, stichtite, pyroaurite, desautelsite, and sergeevite. Therefore, Applicant submits that the §112 rejection with regard to claims 2 and 3 has been obviated.

With regard to claims 19 and 21, Applicant has amended claim 3, 19 and 21 to refer to the layered double hydroxide salt in singular form, thereby obviating the instant §112 rejection of these claims.

Further, with regard to claim 21, it has been amended to refer to the layer double hydroxide salt, and claim 21 is now dependent on claim 3. Support for this amendment can be found in claim 21 as originally filed, wherein it was indicated that the salts listed in claim 3 are optionally modified with one or more dispersing agents. Therefore it is clear that the proper scope of claim 21 is that the layered double hydroxide salt is optionally modified with one or more dispersing agents. Thus, the §112 rejection of claim 21 is now also improper and should be withdrawn.

### **§102(b) Rejections**

Claims 1-7, 19 and 21 are rejected under 35 USC 102(b) as being anticipated by Miyata (US 4,710,551) in view of evidence provided by Bejoy (Hydrotalcite article) and evidence provided by Koyanagi et al (US 3,669,946).

In order to anticipate a claim, a reference must disclose each and every element of the claim. MPEP §2131. Further, reference must show all element “in as complete detail as is contained in the ... claim.” *Id.*, citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Additionally, the elements must be arranged as required by the claim. *Id.*, citing *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Applicant submits that the Miyata reference fails to disclose several claimed limitations, and therefore the instant §102(b) rejection is improper and must be withdrawn.

The Miyata reference does not disclose a coating composition at all, let alone as “a film-forming stain blocking water borne coating composition for coating a substrate, wherein the coating composition prevents water-extractable substances contained in the substrate from

leaching into the coating composition, the coating composition” as required by claim 1 as amended. The Examiner must address the limitation of the coating composition as implementation of the claimed components in a coating composition results in a structural difference over the components themselves and therefore must be appreciated as a physical limitation. It is impermissible to assert that the Miyata reference without more is capable of functioning as a coating composition for the prevention of water-extractable substances when Miyata *does not even disclose a coating composition at all!*

Further, Miyata discloses a vinyl chloride monomer that implements a hydrotalcite compound as a stabilizer in the suspension polymerization of this monomer. One of ordinary skill in the art will appreciate that poly vinyl chloride cannot be considered to be an inherent film-forming organic polymeric binder. One of ordinary skill in the art appreciates that a coating composition with a film-forming binder requires selection of suitable polymer materials of which vinyl chloride is not one. Rather, representative suitable film-forming binders are disclosed in claim 4, and none of these binders are disclosed in Miyata.

Therefore, the instant §102 rejection in view of Miyata is improper and should be withdrawn.

Claims 1-8, 19 and 21 are rejected under 35 U.S.C. §102(b) as being anticipated by Rohrbaugh et al (US2002/0028288) in view of evidence provided by Bejoy (Hydrotalcite article).

Specifically, the Rohrbaugh reference does not disclose a stain blocking water borne coating composition comprising an organic binder, wherein the total amount of the water borne organic polymeric binders is 20-80% by weight, based on the total weight of the water borne coating composition. Nor does the Rohrbaugh reference disclose a coating composition that prevents water extractable substances contained in the substrate from leaching into the coating composition, as required by claims 1 and 22 as amended.

While the present invention requires 4-80% by weight of a film-forming organic polymeric binder, the Rohrbaugh discloses a system in which a water borne binder is not required, and in fact also not disclosed. In paragraphs 0011 and 0012 of Rohrbaugh it is specifically disclosed that, unlike several cited prior art systems such as the ones disclosed in US4,173,480 and US4,868,048, in the system disclosed in Rohrbaugh a “binder is not

required to apply the nanoparticle to the surface.” In fact, the Rohrbaugh reference discloses mixing and/or dispersing nanoparticles in a carrier medium. (*See, e.g.*, paragraphs 0019, 0020, 0021). A carrier medium is not the same as a film forming binder material; for example water can be a carrier medium.

The Examiner asserts that paragraph 0091 of Rohrbaugh (Applicant believes this should be paragraph 0090) discloses “adjunct materials that can be from 0.01-99.99% by weight of the composition. The adjunct materials include polymers (organic binders) (paragraph 0252).”

Applicant disagrees with such an assumption that polymers in paragraph 0252 includes film-forming organic binders as required by the claimed invention. There is no basis for this proposition.

It appears that the Examiner is impermissibly using an inherency argument in this §102 rejection (that because polymers are taught, somehow this inherently includes film-forming organic binders). In order for such an assertion to be valid, “the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” MPEP §2112. The Examiner has not done so.

The closest the Examiner comes to this is the suggestion that polymeric materials adsorb onto the nanoparticles. However, such adsorption is only to change the surface properties of the particles, for example to add hydrophilic character. The amounts are very low and these polymers are certainly not the type and amount of the polymeric film-forming binder materials.

Further, Applicant submits that the coating composition in Rohrbaugh is solvent-borne, and not water-borne, as required by the claimed invention. This illustrates that in Rohrbaugh the nano-particles themselves constitute the hard coating (after application on a substrate). In the coating composition of the invention it is the binder that forms the coating and the specified nanoparticles only modify the properties of said binder. It is common knowledge for the skilled person that the term “binder” is defined as the actual film forming component of paint. Rohrbaugh does not disclose a binder at all. In fact Rohrbaugh distinguishes from such binder based coating compositions as it is described in paragraph

[0005] that Rohrbaugh solves various problems of coatings prepared from such binder based coating compositions by providing a layer of nanoparticles on top.

Paragraph [0087] of Rohrbaugh mentions surfactants and polymeric dispersants but it is clear for the skilled person that is not the same as a binder. This also applies to the functionalized surface molecules mentioned in [0113] and following. These are only used at the surface of the particles for modification. Paragraph [0251] describes that the composition can optionally comprise a one or more components from a long list including polymers. However that also cannot be construed to be a coating composition binder.

In [0263] of Rohrbaugh a commercial available coating is described of a polyurethane on metal. The nanoparticle coating according to Rohrbaugh is applied onto that polyurethane coating (see paragraph [0265] and Fig 4); ie as a separate layer on top of the polyurethane layer. However, it is clear that the polyurethane coating composition itself does not comprise nanoparticles. Figure 4 makes clear that none of the coating layers applied to the metal surface of a car body panel comprises the nanoparticles. The coating of the car body panel involves application of two base coats and a clearcoat. The nanoparticle hard surface coating layer can be applied before between or after application of each of the base coat or a clearcoat layer is or after the initial curing thereof. It is immediately clear that the nanoparticles are not inside the film-forming coating layers but are on top of the film-forming coating layers. Paragraph [0265] of Rohrbaugh describes that the hard surface coating composition can be applied after said one or more coats of paint are applied to the automobile body parts. It is clear that the nanoparticles are intended to form the hard surface coating layer, whereas in the present application the binder in film-forming composition forms the coating layer and the minor amount of nanoparticles therein are to modify the properties of the coating layer.

This becomes further evident in reviewing the Examples of Rohrbaugh. In Example 1 in paragraph [0320] a composition of a ureclear clearcoat which is combined with a nanoclay laponite is described. In this example the components are mixed together with an organic solvent (contrary to the teaching of paragraphs [0263] to [0267]). Nevertheless, there are substantial differences with the present claim:

- Ureclear is not a waterborne Coating composition

- Laponite is a cationic clay, so it does not have a crystal structure with positively charged layers.
- Again here in application the substrate is steel.

It appears that example 1 demonstrates how to prepare a panel onto which a hard surface coating layer with nano-particles that is applied in the subsequent examples to 2 – 28.

The Examiner maintains that when applying a coating composition according to Rohrbaugh to one of the surfaces of a substrate in particular also surface of wood comprising tannins, the result would be inherently achieved. This is not true at all. The only composition comprising nanoparticles are water-based highly diluted nanoparticle compositions comprising only a dispersant or surfactants in a very minor amount. Since this composition in Rohrbaugh is different from the claimed composition, applying the composition in Rohrbaugh to a wood substrate comprising tannins, the problem of the leaching of tannins through the coating layer would be tremendous.

In sum, Applicant respectfully submits that the §102 rejection is improper and should be withdrawn. Applicant believes that the amended claims are patentable and that the instant application should now move to allowance.

#### Request for Telephonic Interview

Applicant hereby requests a telephonic interview should any issues remain. The Examiner may contact Applicant's representative via email to indicate when a convenient time would be to call the Examiner, since the Examiner cannot call internationally.

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Any extension of time that may be deemed necessary to further the prosecution of this application is hereby requested.

The Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment, to Deposit Account No. 50-5380, referencing the docket number shown above.

Pursuant to MPEP §502.03, authorization is hereby given to the USPTO to communicate with Applicant's representative concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be



made of record in the application file. Applicant's representative, Coraline J. Haitjema, can be reached at email address [haitjemac@hoyngmonegier.com](mailto:haitjemac@hoyngmonegier.com).

The Examiner may also contact the undersigned by telephone at the number given below in order to resolve any questions.

Respectfully submitted,

/chaitjema/

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